

(19)



(11)

EP 1 096 725 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
11.03.2009 Bulletin 2009/11

(51) Int Cl.:
H04L 12/28 (2006.01) **H04L 29/06** (2006.01)
H04L 12/56 (2006.01)

(21) Application number: **00128439.7**

(22) Date of filing: **28.05.1999**

(54) **System and method for pushing information from a host system to a mobile data communication device**

Verfahren und Vorrichtung zum Schieben von Information von einem Wirtrechnersystem zu einem mobilen Datenkommunikationsgerät

Système et procédé permettant de transférer des informations dans un dispositif de communication de données mobile à partir d'un système hôte

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GR IE IT LI LU MC
NL PT SE**

(30) Priority: **29.05.1998 US 87623**

(43) Date of publication of application:
02.05.2001 Bulletin 2001/18

(62) Document number(s) of the earlier application(s) in
accordance with Art. 76 EPC:
99922026.2 / 1 082 839

(73) Proprietor: **Research In Motion Limited**
Waterloo, Ontario N2L 3W8 (CA)

(72) Inventors:
• **Mousseau, Gary P.**
Waterloo,
Ontario,
N2T 1H7 (CA)
• **Lazaridis, Mihal**
Waterloo, Ontario N2T 2K1 (CA)

(74) Representative: **Reichl, Wolfgang**
Schmit Chretien Schihin & Mahler
Baaderstraße 3
80469 München (DE)

(56) References cited:
EP-A- 0 825 788 **WO-A-97/26709**
WO-A-97/27717 **WO-A-97/32251**
WO-A-98/00787 **US-A- 5 579 472**

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 1 096 725 B1

Description

BACKGROUND OF THE INVENTION

[0001] The present invention is directed toward the field of replicating information from a host system where the information is normally stored to a mobile data communication device. In particular, the system and method of the present invention provide an event-driven redirection computer program ("redirector program") operating at the host system, which, upon sensing a particular user-defined event has occurred, redirects user-selected data items from the host system to the user's mobile data communication device. The mobile data communication device is preferably coupled to the host system via a wireless network and one or more landline networks. Due to the bandwidth limitations of wireless networks, only a portion of a user-selected data item is generally redirected to the user's mobile device, with the user given the option of then retrieving the entire data item (or some other portion of the data item) from the host system.

[0002] Instead of warehousing (or storing) the user's data items at the host system and then "synchronizing" the mobile data communication device to data items stored at the host system when the mobile device requests that such items of information be communicated to it, the present invention employs a "push" paradigm that continuously packages and retransmits the user-selected items of information to the mobile data communication device in response to a triggering event detected at the host system. Wireless mobile data communications devices, especially those that can return a confirmation signal to the host that the pushed data has been received are especially well suited for this type of push paradigm.

[0003] Present systems and methods for replicating information from a host system to a user's mobile data communication device are typically "synchronization" systems in which the user's data items are warehoused (or stored) at the host system for an indefinite period of time and then transmitted in bulk only in response to a user request. In these types of systems and methods, when replication of the warehoused data items to the mobile device is desired, the user typically places the mobile device in an interface cradle that is electrically connected to the host system via some form of local, dedicated communication, such as a serial cable or an infrared or other type of wireless link. Software executing on the mobile data communication device then transmits commands via the local communications link to the host system to cause the host to begin transmitting the user's data items for storage in a memory bank of the mobile device. In these synchronization schemes, the mobile unit "pulls" the warehoused information from the host system in a batch each time the user desires to replicate information between the two devices. Therefore, the two systems (host and mobile) only maintain the same data items after a user-initiated command sequence that

causes the mobile device to download the data items from the host system. A general problem with these synchronization systems is that the only time that the user data items are replicated between the host system and the mobile data communication device is when the user commands the mobile device to download or pull the user data from the host system. Five minutes later a new message could be sent to the user, but the user would not receive that message until the next time the user fetches the user data items. Thus, a user may fail to respond to an emergency update or message because the user only periodically synchronizes the system, such as once per day. Other problems with these systems include: (1) the amount of data to be reconciled between the host and the mobile device can become large if the user does not "synchronize" on a daily or hourly basis, leading to bandwidth difficulties, particularly when the mobile device is communicating via a wireless packet-switched network; and (2) reconciling large amounts of data, as can accrue in these batch-mode synchronization systems, can require a great deal of communication between the host and the mobile device, thus leading to a more complex, costly and energy-inefficient system. A more automated, continuous, efficient and reliable system of ensuring that user data items are replicated at the user's mobile device is therefore needed.

[0004] An additional feature of the present invention is that the push paradigm, in combination with a return communications pathway, lends itself well to a system that permits a user to control remotely, through the user's mobile device, a number of aspects of the host system.

[0005] There remains a general need in this art for a system and method of continuously pushing user-selected data items (or certain portions of the selected data items) stored at a host system to a user's mobile data communication device.

[0006] There remains a more particular need for such a system and method where user-selected data items are continuously "pushed" from the host system to the mobile data communication device upon the occurrence of one or more user-defined triggering events.

[0007] There remains an additional need for such a system and method that provides flexibility in the types and quantities of user data items that are pushed from the host system to the mobile data communication device and that also provides flexibility in the configuration and types of events that can serve to trigger the redirection of the user data items.

[0008] There remains yet an additional need for such a system and method that can operate locally on a user's desktop PC or at a distance via a network server.

[0009] There remains still another need for such a system and method that provides for secure, transparent delivery of the user-selected data items from the host system to the mobile device.

[0010] The document WO 97/41654 describes a system and method for disseminating information from one or more information sources, or databases, to mobile

subscribers through a message distribution center. The message distribution center processes the data from the one or more information sources and generates individual messages for subscribers based upon a subscriber-defined profile. The information messages can be transmitted at predetermined times, such as every morning at 9:00 am, or upon the occurrence of a predetermine event, such as when a stock price exceeds a particular value. In addition, the information messages can be transmitted based on the subscriber's location, or based on a request message from the individual subscriber.

[0011] The document WO 97/32251 describes a method of replicating information between two systems in which software programs are executed at a provider computer system and a consumer computer system in order to maintain a communications control structure for transferring information between the two systems. This control structure originates at the provider computer and is transferred to the consumer computer. Changes to the structure on the provider computer result in an updated version being transferred to the consumer computer. The communications control structure contains a combination of data, metadata, and instructions which are used by the respective programs to control the origination of outgoing communications and the processing of incoming communications between the provider and consumer.

[0012] RFC1631 "The IP Network Address Translator (NAT)" by Egevang et al, May 1994, proposes a network address translation for stub border routers connecting a stub domain and a backbone and forwarding IP packets. The address translation is to reuse IP addresses by other stub domains for solving IP address depletion.

SUMMARY OF THE INVENTION

[0013] The present invention overcomes the problems noted above and satisfies the needs in this field for a system and method of pushing user-selected data items from a host system to a user's mobile data communication device upon detecting the occurrence of one or more user-defined event triggers. As used in this application, the term host system refers to the computer where the redirector software is operating. In the preferred embodiment of the present invention, the host system is a user's desktop PC, although, alternatively, the host system could be a network server connected to the user's PC via a local-area network ("LAN"), or could be any other system that is in communication with the user's desktop PC.

[0014] A redirector program operating at the host system enables the user to redirect or mirror certain user-selected data items (or parts of data items) from the host system to the user's mobile data communication device upon detecting that one or more user-defined triggering events has occurred. Also operating at the host system are various sub-systems that can be configured to create triggering events, such as a screen saver sub-system or a keyboard sub-system, as well as sub-systems for

repackaging the user's data items for transparent delivery to the mobile data device, such as a TCP/IP sub-system or one or more E-Mail sub-systems. Other sub-systems for creating triggering events and repackaging the user's data items could also be present at the host system. The host system also includes a primary memory store where the user's data items are normally stored.

[0015] Using the redirector program, the user can select certain data items for redirection, such as E-mail messages, calendar events, meeting notifications, address entries, journal entries, personal reminders etc. Having selected the data items for redirection, the user can then configure one or more event triggers to be sensed by the redirector program to initiate redirection of the user data items. These user-defined trigger points (or event triggers) include external events, internal events and networked events. Examples of external events include: receiving a message from the user's mobile data communication device to begin redirection; receiving a similar message from some external computer; sensing that the user is no longer in the vicinity of the host system; or any other event that is external to the host system. Internal events could be a calendar alarm, screen saver activation, keyboard timeout, programmable timer, or any other user-defined event that is internal to the host system. Networked events are user-defined messages that are transmitted to the host system from another computer coupled to the host system via a network to initiate redirection. These are just some of the examples of the types of user-defined events that can trigger the redirector program to push data items from the host to the mobile device. Although in the preferred embodiment it is anticipated that the configuration that specifies which data items will be redirected and in what form will be set at the host system, it is within the scope of this invention that such configuration may be set or modified through data sent from the mobile communications device.

[0016] In addition to the functionality noted above, the redirector program provides a set of software-implemented control functions for determining the type of mobile data communication device and its address, for programming a preferred list of message types that are to be redirected, and for determining whether the mobile device can receive and process certain types of message attachments, such as word processor or voice attachments. The determination of whether a particular mobile device can receive and process attachments is initially configured by the user of that mobile device at the host system. This configuration can be altered on a global or per message basis by transmitting a command message from the mobile device to the host system. If the redirector is configured so that the mobile data device cannot receive and process word processor or voice attachments, then the redirector routes these attachments to an external machine that is compatible with the particular attachment such as an attached printer or networked fax machine or telephone. Other types of attachments could be

redirected to other types of external machines in a similar fashion, depending upon the capabilities, of the mobile device. For example, if a user is traveling and receives a message with an attachment that the user's mobile device can not process or display, the user may from a mobile communications device send a command message to the host system indicating that that attachment is to be sent to a fax machine at a hotel where the user will be spending the evening. This enables the user to receive important E-mail attachments as long as the host system is provided with sufficient information about the destination where the attachment is to be forwarded.

[0017] Once an event has triggered redirection of the user data items, the host system then repackages these items in a manner that is transparent to the mobile data communication device, so that information on the mobile device appears similar to information on the user's host system. The preferred repackaging method includes wrapping the user data items in an E-mail envelope that corresponds to the address of the mobile data communication device, although, alternatively, other repackaging methods could be used with the present invention, such as special-purpose TCP/IP wrapping techniques, or other methods of wrapping the user selected data items. The repackaging preferably results in E-mail messages generated by the user from the mobile device to be transmitted from the host system, thus enabling the user to appear to have a single E-mail address, such that the recipients of messages sent from the mobile communications device do not know where the user was physically located when the message was first sent. The repackaging also permits both messages to the mobile device and sent from the mobile device to be encrypted and decrypted as well as compressed and decompressed.

[0018] In an alternative system and method, the redirector program executes on a network server, and the server is programmed to detect numerous redirection event triggers over the network from multiple user desktop computers coupled to the server via a LAN. The server can receive internal event triggers from each of the user desktops via the network, and can also receive external event triggers, such as messages from the users' mobile data communication devices. In response to receiving one of these triggers, the server redirects the user's data items to the proper mobile data communication device. The user data items and addressing information for a particular mobile device can be stored at the server or at the user's PC. Using this alternative configuration, one redirector program can serve a plurality of users. This alternative configuration could also include an internet- or intranet-based redirector program that could be accessible through a secure webpage or other user interface. The redirector program could be located on an Internet Service Provider's system and accessible only through the Internet.

[0019] In another alternative configuration of the present invention, a redirector program operates at both

the host system and at the user's mobile data communication device. In this configuration, the user's mobile device operates similarly to the host system described below, and is configured in a similar fashion to push certain user-selected data items from the mobile device to the user's host system (or some other computer) upon detecting an event trigger at the mobile device. This configuration provides two-way pushing of information from the host to the mobile device and from the mobile device to the host.

[0020] The primary advantage of the present invention is that it provides a system and method for triggering the continuous and real-time redirection of user-selected data items from a host system to a mobile data communication device. Other advantages of the present invention include: (1) flexibility in defining the types of user data to redirect, and in defining a preferred list of message types that are to be redirected or preferred senders whose messages are to be redirected; (2) flexibility in configuring the system to respond to numerous internal, external and networked triggering events; (3) transparent repackaging of the user data items in a variety of ways such that the mobile data communication device appears as though it were the host system; (4) integration with other host system components such as E-mail, TCP/IP, keyboard, screen saver, webpages and certain programs that can either create user data items or be configured to provide trigger points; and (5) the ability to operate locally on a user's desktop system or at a distance via a network server.

[0021] These are just a few of the many advantages of the present invention, as described in more detail below. As will be appreciated, the invention is capable of other and different embodiments, and its several details are capable of modifications in various respects. Accordingly, the drawings and description of the preferred embodiments set forth below are to be regarded as illustrative in nature and not restrictive.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] The present invention satisfies the needs noted above as will become apparent from the following description when read in conjunction with the accompanying drawings wherein:

FIG. 1 is a system diagram showing the redirection of user data items from a user's desktop PC (host system) to the user's mobile data communication device, where the redirector software is operating at the user's desktop PC.

FIG. 2 is a system diagram showing the redirection of user data items from a network server (host system) to the user's mobile data communication device, where the redirector software is operating at the server.

FIG. 3 is a block diagram showing the interaction of the redirector software with other components of the

host system in FIG. 1 (the user's desktop PC) to enable the pushing of information from the host system to the user's mobile data communication device.

FIG. 4 is a flow chart showing the steps carried out by the redirector software operating at the host system.

FIG. 5 is a flow chart showing the steps carried out by the mobile data communication device to interface with the redirector software operating at the host system.

DETAILED DESCRIPTION OF THE DRAWINGS

[0023] Referring now to the drawings, FIG. 1 is an example system diagram showing the redirection of user data items (such as message A or C) from a user's office PC (host system) 10 to the user's mobile data communication device 24, where the redirector software 12 is operating at the user's PC. Message A in FIG. 1 represents an internal message sent from desktop 26 to the user's host system 10 via LAN 14. Message C in FIG. 1 represents an external message from a sender that is not directly connected to LAN 14, such as the user's mobile data communication device 24, some other user's mobile device (not shown), or any user connected to the Internet 18. Message C also represents a command message from the user's mobile data communication device 24 to the host system 10. As described in more detail in FIG. 3, the host system 10 preferably includes, along with the typical hardware and software associated with a workstation or desktop computer, the redirector program 12, a TCP/IP subsystem 42, a primary message store 40, an E-mail subsystem 44, a screen saver subsystem 48, and a keyboard subsystem 46.

[0024] In FIG. 1, the host system 10 is the user's desktop system, typically located in the user's office. The host system 10 is connected to a LAN 14, which also connects to other computers 26, 28 that may be in the user's office or elsewhere. The LAN 14, in turn, is connected to a wide area network ("WAN") 18, preferably the Internet, which is defined by the use of the Transmission Control Protocol/Internet Protocol ("TCP/IP") to exchange information, but which, alternatively could be any other type of WAN. The connection of the LAN 14 to the WAN 18 is via high bandwidth link 16, typically a T1 or T3 connection. The WAN 18 in turn is connected to a variety of gateways 20, via connections 32. A gateway forms a connection or bridge between the WAN 18 and some other type of network, such as an RF wireless network, cellular network, satellite network, or other synchronous or asynchronous land-line connection.

[0025] In the example of FIG. 1, a wireless gateway 20 is connected to the Internet for communicating via wireless link 22 to a plurality of wireless mobile data communication devices 24. Also shown in FIG. 1 is machine 30, which could be a FAX machine, a printer, a system for displaying images (such as video) or a machine capable of processing and playing audio files, such as a

voice mail system. The present invention includes the ability to redirect certain message attachments to such an external machine 30 if the redirector program configuration data reflects that the mobile device 24 cannot receive and process the attachments, or if the user has specified that certain attachments are not to be forwarded to mobile device 24, even if such device can process those attachments. By way of example, consider an E-mail sent to a user that includes three attachments - a word processing document, a video clip and an audio clip. The redirection program could be configured to send the text of the E-mail to the remote device, to send the word processing document to a networked printer located near the user, to send the video clip to a store accessible through a secure connection through the internet and to send the audio clip to the user's voice mail system. This example is not intended to limit the breadth and scope of the invention, but rather to illustrate the variety of possibilities embodied in the redirection concept.

[0026] The preferred mobile data communication device 24 is a hand-held two-way wireless paging computer, a wirelessly enabled palm-top computer, a mobile telephone with data messaging capabilities, or a wirelessly enabled laptop computer, but could, alternatively be other types of mobile data communication devices capable of sending and receiving messages via a network connection 22. Although it is preferable for the system to operate in a two-way communications mode, certain aspects of the invention could be beneficially used in a "one and one-half" or acknowledgment paging environment, or even with a one-way paging system. The mobile data communication device 24 includes software program instructions that work in conjunction with the redirector program 12 to enable the seamless, transparent redirection of user-selected data items. FIG. 4 describes the basic method steps of the redirector program 12, and FIG. 5 describes the steps of the corresponding program operating at the mobile device 24.

[0027] In an alternative embodiment of the present invention, not explicitly shown in the drawings, the mobile device 24 also includes a redirector program. In this embodiment, user selected data items can be replicated from the host to the mobile device and vice versa. The configuration and operation of the mobile device 24 having a redirector program is similar to that described herein with respect to FIGs. 1-4.

[0028] A user of the present invention can configure the redirector program 12 to push certain user-selected data items to the user's mobile data communication device 24 when the redirector 12 detects that a particular user-defined event trigger (or trigger point) has taken place. User-selected data items preferably include E-mail messages, calendar events, meeting notifications, address entries, journal entries, personal alerts, alarms, warnings, stock quotes, news bulletins, etc., but could, alternatively, include any other type of message that is transmitted to the host system 10, or that the host system 10 acquires through the use of intelligent agents, such

as data that is received after the host system 10 initiates a search of a database or a website or a bulletin board. In some instances, only a portion of the data item is transmitted to the mobile device 24 in order to minimize the amount of data transmitted via the wireless network 22. In these instances, the mobile device 24 can optionally send a command message to the host system to receive more or all of the data item if the user desires to receive it.

[0029] Among the user-defined event triggers that can be detected by the redirector program 12 are in the preferred embodiment external events, internal events and networked events. External events preferably include: (1) receiving a command message (such as message C) from the user's mobile data communication device to begin redirection, or to execute some other command at the host, such as a command to enable the preferred list mode, or to add or subtract a particular sender from the preferred list; (2) receiving a similar message from some external computer, and (3) sensing that the user is no longer in the vicinity of the host system; although, alternatively, an external event can be any other detectable occurrence that is external to the host system. Internal events could be a calendar alarm, screen saver activation, keyboard timeout, programmable timer, or any other user-defined event that is internal to the host system. Networked events are user-defined messages that are transmitted to the host system from another computer coupled to the host system via a network to initiate redirection. These are just some of the events that could be used with the present invention to initiate replication of the user-selected data items from the host system 10 to the mobile device 24.

[0030] FIG. 1 shows an E-mail message A being communicated over LAN 14 from computer 26 to the user's desktop system 10 (also shown in FIG. 1 is an external message C, which could be an E-mail message from an Internet user, or could be a command message from the user's mobile device 24). Once the message A (or C) reaches the primary message store of the host system 10, it can be detected and acted upon by the redirection software 12. The redirection software 12 can use many methods of detecting new messages. The preferred method of detecting new messages is using Microsoft's® Messaging API (MAPI), in which programs, such as the redirector program 12, register for notifications or 'advise syncs' when changes to a mailbox take place. Other methods of detecting new messages could also be used with the present invention.

[0031] Assuming that the redirector program 12 is activated, and has been configured by the user (either through the sensing of an internal, network or external event) to replicate certain user data items (including messages of type A or C) to the mobile device 24, when the message A is received at the host system 10, the redirector program 12 detects its presence and prepares the message for redirection to the mobile device 24. In preparing the message for redirection, the redirector program 12 could compress the original message A, could

compress the message header, or could encrypt the entire message A to create a secure link to the mobile device 24.

[0032] Also programmed into the redirector 12 is the address of the user's mobile data communication device 24, the type of device, and whether the device 24 can accept certain types of attachments, such as word processing or voice attachments. If the user's type of mobile device cannot accept these types of attachments, then the redirector 12 can be programmed to route the attachments to a fax or voice number where the user is located using an attached fax or voice machine 30.

[0033] The redirector may also be programmed with a preferred list mode that is configured by the user either at the host system 10, or remotely from the user's mobile data communication device by transmitting a command message C. The preferred list contains a list of senders (other users) whose messages are to be redirected or a list of message characteristics that determine whether a message is to be redirected. If activated, the preferred list mode causes the redirector program 12 to operate like a filter, only redirecting certain user data items based on whether the data item was sent from a sender on the preferred list or has certain message characteristics that if present will trigger or suppress redirection of the message. In the example of FIG. 1, if desktop system 26 was operated by a user on the preferred list of host system 10, and the preferred list option was activated, then message A would be redirected. If, however, desktop 26 was operated by a user not on the host system's preferred list, then message A would not be redirected, even if the user of the host system had configured the redirector to push messages of type A. The user of the host system 10 can configure the preferred list directly from the desktop system, or, alternatively, the user can then send a command message (such as C) from the mobile device 24 to the desktop system 10 to activate the preferred list mode, or to add or delete certain senders or message characteristics from the preferred list that was previously configured. It should be appreciated that a redirection program could combine message characteristics and preferred sender lists to result in a more finely-tuned filter. Messages marked as low priority or that are simple return receipts or message read receipts, for example, could always be suppressed from redirection while messages from a particular sender would always be redirected.

[0034] After the redirector has determined that a particular message should be redirected, and it has prepared the message for redirection, the software 12 then sends the message A to a secondary memory store located in the mobile device 24, using whatever means are necessary. In the preferred embodiment this method is to send the message A back over the LAN 14, WAN 18, and through the wireless gateway 20 to the mobile data communication device 24. In doing so, the redirector preferably repackages message A as an E-mail with an outer envelope B that contains the addressing information of the mobile device 24, although alternative repackaging

techniques and protocols could be used, such as a TCP/IP repackaging and delivery method (most commonly used in the alternative server configuration shown in FIG.2). The wireless gateway 20 requires this outer envelope information B in order to know where to send the redirected message A. Once the message (A in B) is received by the mobile device 24, the outer envelope B is removed and the original message A is placed in the secondary memory store within the mobile device 24. By repackaging and removing the outer envelope in this manner, the present invention causes the mobile computer 24 to appear to be at the same physical location as the host system 10, thus creating a transparent system.

[0035] In the case where message C is representative of an external message from a computer on the Internet 18 to the host system 10, and the host 10 has been configured to redirect messages of type C, then in a similar manner to message A, message C would be repackaged with an outer envelope B and transmitted to the user's mobile device 24. In the case where message C is representative of a command message from the user's mobile device 24 to the host system 10, the command message C is not redirected, but is acted upon by the host system 10.

[0036] If the redirected user data item is an E-mail message, as described above, the user at the mobile device 24 sees the original subject, sender's address, destination address, carbon copy and blind carbon copy. When the user replies to this message, or when the user authors a new message, the software operating at the mobile device 24 adds a similar outer envelope to the reply message (or the new message) to cause the message to be routed first to the user's host system 10, which then removes the outer envelope and redirects the message to the final destination, such as back to computer 26. In the preferred embodiment, this results in the outgoing redirected message from the user's host system 10 being sent using the E-mail address of the host mailbox, rather than the address of the mobile device, so that it appears to the recipient of the message that the message originated from the user's desktop system 10 rather than the mobile data communication device. Any replies to the redirected message will then be sent to the desktop system 10, which if it is still in redirector mode, will repackage the reply and resend it to the user's mobile data device, as described above.

[0037] FIG. 2 is an alternative system diagram showing the redirection of user data items from a network server 11 to the user's mobile data communication device 24, where the redirector software 12 is operating at the server 11. This configuration is particularly advantageous for use with message servers such as Microsoft's® Exchange Server, which is normally operated so that all user messages are kept in one central location or mailbox store on the server instead of in a store within each user's desktop PC. This configuration has the additional advantage of allowing a single system administrator to config-

ure and keep track of all users having messages redirected. If the system includes encryption keys, these too can be kept at one place for management and update purposes.

[0038] In this alternative configuration, server 11 preferably maintains a user profile for each user's desktop system 10, 26, 28, including information such as whether a particular user can have data items redirected, which types of message and information to redirect, what events will trigger redirection, the address of the users' mobile data communication device 24, the type of mobile device, and the user's preferred list, if any. The event triggers are preferably detected at the user's desktop system 10, 26, 28 and can be any of the external, internal or network events listed above. The desktop systems 10, 26, 28 preferably detect these events and then transmit a message to the server computer 11 via LAN 14 to initiate redirection. Although the user data items are preferably stored at the server computer 11 in this embodiment, they could, alternatively, be stored at each user's desktop system 10, 26, 28, which would then transmit them to the server computer 11 after an event has triggered redirection.

[0039] As shown in FIG. 2, desktop system 26 generates a message A that is transmitted to and stored at the host system 11, which is the network server operating the redirector program 12. The message A is for desktop system 10, but in this embodiment, user messages are stored at the network server 11. When an event occurs at desktop system 10, an event trigger is generated and transmitted to the network server 11, which then determines who the trigger is from, whether that desktop has redirection capabilities, and if so, the server (operating the redirector program) uses the stored configuration information to redirect message A to the mobile computer 24 associated with the user of desktop system 10.

[0040] As described above with reference to FIG. 1, message C could be either a command message from a user's mobile data communication device 24, or it could be a message from an external computer, such as a computer connected to the Internet 18. If the message C is from an Internet computer to the user's desktop system 10, and the user has redirection capabilities, then the server 11 detects the message C, repackages it using electronic envelope B, and redirects the repackaged message (C in B) to the user's mobile device 24. If the message C is a command message from the user's mobile device 24, then the server 11 simply acts upon the command message.

[0041] Turning now to FIG. 3, a block diagram showing the interaction of the redirector software 12 with additional components of the host system 10 of FIG. 1 (the desktop PC) to enable more fully the pushing of information from the host system 10 to the user's mobile data communication device 24 is set forth. These additional components are illustrative of the type of event-generating systems that can be configured and used with the redirector software 12, and of the type of repackaging sys-

tems that can be used to interface with the mobile communication device 24 to make it appear transparent to the user.

[0042] The desktop system 10 is connected to LAN 14, and can send and receive data, messages, signals, event triggers, etc., to and from other systems connected to the LAN 14 and to external networks 18, 22, such as the Internet or a wireless data network, which are also coupled to the LAN 14. In addition to the standard hardware, operating system, and application programs associated with a typical microcomputer or workstation, the desktop system 10 includes the redirector program 12, a TCP/IP sub-system 42, an E-mail sub-system 44, a primary data storage device 40, a screen saver sub-system 48, and a keyboard sub-system 46. The TCP/IP and E-mail subsystems 42, 44 are examples of repackaging systems that can be used to achieve the transparency of the present invention, and the screen saver and keyboard sub-systems 46, 48 are examples of event generating systems that can be configured to generate event messages or signals that trigger redirection of the user selected data items.

[0043] The method steps carried out by the redirector program 12 are described in more detail in FIG. 4. The basic functions of this program are: (1) configure and setup the user-defined event trigger points that will start redirection; (2) configure the types of user data items for redirection and optionally configure a preferred list of senders whose messages are to be redirected; (3) configure the type and capabilities of the user's mobile data communication device; (4) receive messages and signals from the repackaging systems and the event generating systems; and (5) command and control the redirection of the user-selected data items to the mobile data communication device via the repackaging systems. Other functions not specifically enumerated could also be integrated into this program.

[0044] The E-Mail sub-system 44 is the preferred link to repackaging the user-selected data items for transmission to the mobile data communication device 24, and preferably uses industry standard mail protocols, such as SMTP, POP, IMAP, MIME and RFC-822, to name but a few. The E-Mail sub-system 44 can receive messages A from external computers on the LAN 14, or can receive messages C from some external network such as the Internet 18 or a wireless data communication network 22, and stores these messages in the primary data store 40. Assuming that the redirector 12 has been triggered to redirect messages of this type, the redirector detects the presence of any new messages and instructs the E-Mail system 44 to repackage the message by placing an outer wrapper B about the original message A (or C), and by providing the addressing information of the mobile data communication device 24 on the outer wrapper B. As noted above, this outer wrapper B is removed by the mobile device 24, and the original message A (or C) is then recovered, thus making the mobile device 24 appear to be the desktop system 10.

[0045] In addition, the E-Mail sub-system 44 receives messages back from the mobile device 24 having an outer wrapper with the addressing information of the desktop system 10, and strips this information away so that the message can be routed to the proper sender of the original message A (or C). The E-Mail sub-system also receives command messages C from the mobile device 24 that are directed to the desktop system 10 to trigger redirection or to carry out some other function. The functionality of the E-Mail sub-system 44 is controlled by the redirector program 12.

[0046] The TCP/IP sub-system 42 is an alternative repackaging system. It includes all of the functionality of the E-Mail sub-system 44, but instead of repackaging the user-selected data items as standard E-mail messages, this system repackages the data items using special-purpose TCP/IP packaging techniques. This type of special-purpose sub-system is useful in situations where security and improved speed are important to the user. The provision of a special-purpose wrapper that can only be removed by special software on the mobile device 24 provides the added security, and the bypassing of E-mail store and forward systems can improve speed and real-time delivery.

[0047] As described previously, the present invention can be triggered to begin redirection upon detecting numerous external, internal and networked events, or trigger points. Examples of external events include: receiving a command message from the user's mobile data communication device 24 to begin redirection; receiving a similar message from some external computer; sensing that the user is no longer in the vicinity of the host system; or any other event that is external to the host system. Internal events could be a calendar alarm, screen saver activation, keyboard timeout, programmable timer, or any other user-defined event that is internal to the host system. Networked events are user-defined messages that are transmitted to the host system from another computer that is connected to the host system via a network to initiate redirection.

[0048] The screen saver and keyboard sub-systems 46, 48 are examples of systems that are capable of generating internal events. Functionally, the redirector program 12 provides the user with the ability to configure the screen saver and keyboard systems so that under certain conditions an event trigger will be generated that can be detected by the redirector 12 to start the redirection process. For example, the screen saver system can be configured so that when the screen saver is activated, after, for example, 10 minutes of inactivity on the desktop system, an event trigger is transmitted to the redirector 12, which starts redirecting the previously selected user data items. In a similar manner the keyboard sub-system can be configured to generate event triggers when no key has been depressed for a particular period of time, thus indicating that redirection should commence. These are just two examples of the numerous application programs and hardware systems internal to the host system

10 that can be used to generate internal event triggers.

[0049] FIGs. 4 and 5, set forth, respectively, flow charts showing the steps carried out by the redirector software 12 operating at the host system 10, and the steps carried out by the mobile data communication device 24 in order to interface with the host system. Turning first to FIG. 4, at step 50, the redirector program 12 is started and initially configured. The initial configuration of the redirector 12 includes: (1) defining the event triggers that the user has determined will trigger redirection; (2) selecting the user data items for redirection; (3) selecting the prepackaging sub-system, either standard E-Mail, or special-purpose technique; (4) selecting the type of data communication device, indicating whether and what type of attachments the device is capable of receiving and processing and inputting the address of the mobile device; and (5) configuring the preferred list of user selected senders whose messages are to be redirected.

[0050] FIG. 4 sets forth the basic steps of the redirector program 12 assuming it is operating at a desktop system 10, such as shown in FIG. 1. If the redirector 12 is operating at a network server 11, as shown in FIG. 2, then additional configuration steps may be necessary to enable redirection for a particular desktop system 10, 26, 28 connected to the server, including: (1) setting up a profile for the desktop system indicating its address, events that will trigger redirection, and the data items that are to be redirected upon detecting an event; (2) maintaining a storage area at the server for the data items; and (3) storing the type of data communication device to which the desktop system's data items are to be redirected, whether and what type of attachments the device is capable of receiving and processing, and the address of the mobile device.

[0051] Once the redirector program is configured 50, the trigger points (or event triggers) are enabled at step 52. The program 12 then waits 56 for messages and signals 54 to begin the redirection process. A message could be an E-Mail message or some other user data item than may have been selected for redirection, and a signal could be a trigger signal, or could be some other type of signal that has not been configured as an event trigger. When a message or signal is detected, the program determines 58 whether it is one of the trigger events that has been configured by the user to signal redirection. If so, then at step 60 a trigger flag is set, indicating that subsequently received user data items (in the form of messages) that have been selected for redirection should be pushed to the user's mobile data communication device 24.

[0052] If the message or signal 54 is not a trigger event, the program then determines at steps 62, 64 and 66 whether the message is, respectively, a system alarm 62, an E-Mail message 64, or some other type of information that has been selected for redirection. If the message or signal is none of these three items, then control returns to step 56, where the redirector waits for additional messages 54 to act upon. If, however the message

is one of these three types of information, then the program 12 determines, at step 68, whether the trigger flag has been set, indicating that the user wants these items redirected to the mobile device. If the trigger flag is set, then at step 70, the redirector 12 causes the repackaging system (E-Mail or TCP/IP) to add the outer envelope to the user data item, and at step 72 the repackaged data item is then redirected to the user's mobile data communication device 24 via LAN 14, WAN 18, wireless gateway 20 and wireless network 22. Control then returns to step 56 where the program waits for additional messages and signals to act upon. Although not shown explicitly in FIG. 4, after step 68, the program could, if operating in the preferred list mode, determine whether the sender of a particular data item is on the preferred list, and if not, then the program would skip over steps 70 and 72 and proceed directly back to step 56. If the sender was on the preferred list, then control would similarly pass to steps 70 and 72 for repackaging and transmission of the message from the preferred list sender.

[0053] FIG. 5 sets forth the method steps carried out by the user's mobile data communication device 24 in order to interface to the redirector program 12 of the present invention. At step 80 the mobile software is started and the mobile device 24 is configured to operate with the system of the present invention, including, for example, storing the address of the user's desktop system 10.

[0054] At step 82, the mobile device waits for messages and signals 84 to be generated or received. Assuming that the redirector software 12 operating at the user's desktop system 10 is configured to redirect upon receiving a message from the user's mobile device 24, at step 86, the user can decide to generate a command message that will start redirection. If the user does so, then at step 88 the redirection message is composed and sent to the desktop system 10 via the wireless network 22, through the wireless gateway 20, via the Internet 18 to the LAN 14, and is finally routed to the desktop machine 10. In this situation where the mobile device 24 is sending a message directly to the desktop system 10, no outer wrapper is added to the message (such as message C in FIGs. 1 and 2). In addition to the redirection signal, the mobile device 24 could transmit any number of other commands to control the operation of the host system, and in particular the redirector program 12. For example, the mobile 24 could transmit a command to put the host system into the preferred list mode, and then could transmit additional commands to add or subtract certain senders from the preferred list. In this manner, the mobile device 24 can dynamically limit the amount of information being redirected to it by minimizing the number of senders on the preferred list. Other example commands include: (1) a message to change the configuration of the host system to enable the mobile device 24 to receive and process certain attachments; and (2) a message to instruct the host system to redirect an entire data item to the mobile device in the situation where only a portion of a particular data item has been redirected.

[0055] Turning back to FIG. 5, if the user signal or message is not a direct message to the desktop system 10 to begin redirection (or some other command), then control is passed to step 90, which determines if a message has been received. If a message is received by the mobile, and it is a message from the user's desktop 10, as determined at step 92, then at step 94 a desktop redirection flag is set "on" for this message, and control passes to step 96 where the outer envelope is removed. Following step 96, or in the situation where the message is not from the user's desktop, as determined at step 92, control passes to step 98, which displays the message for the user on the mobile device's display. The mobile unit 24 then returns to step 82 and waits for additional messages or signals.

[0056] If the mobile device 24 determines that a message has not been received at step 90, then control passes to step 100, where the mobile determines whether there is a message to send. If not, then the mobile unit returns to step 82 and waits for additional messages or signals. If there is at least one message to send, then at step 102 the mobile determines whether it is a reply message to a message that was received by the mobile unit. If the message to send is a reply message, then at step 108, the mobile determines whether the desktop redirection flag is on for this message. If the redirection flag is not on, then at step 106 the reply message is simply transmitted from the mobile device to the destination address via the wireless network 22. If, however, the redirection flag is on, then at step 110 the reply message is repackaged with the outer envelope having the addressing information of the user's desktop system 10, and the repackaged message is then transmitted to the desktop system 10 at step 106. As described above, the redirector program 12 executing at the desktop system then strips the outer envelope and routes the reply message to the appropriate destination address using the address of the desktop system as the "from" field, so that to the recipient of the redirected message, it appears as though it originate from the user's desktop system rather than the mobile data communication device.

[0057] If, at step 102, the mobile determines that the message is not a reply message, but an original message, then control passes to step 104, where the mobile determines if the user is using the redirector software 12 at the desktop system 10, by checking the mobile unit's configuration. If the user is not using the redirector software 12, then the message is simply transmitted to the destination address at step 106. If, however, the mobile determines that the user is using the redirector software 12 at the desktop system 10, then control passes to step 110, where the outer envelope is added to the message. The repackaged original message is then transmitted to the desktop system 10 at step 106, which, as described previously, strips the outer envelope and routes the message to the correct destination. Following transmission of the message at step 106, control of the mobile returns to step 82 and waits for additional messages or signals.

[0058] Having described in detail the preferred embodiments of the present invention, including the preferred methods of operation, it is to be understood that this operation could be carried out with different elements and steps. This preferred embodiment, is presented only by way of example and is not meant to limit the scope of the present invention which is defined by the following claims.

Claims

1. A message redirection method operating at a host system (10, 11), comprising the steps of:

- configuring one or more redirection events at the host system (10, 11);
 - detecting that a redirection event has occurred at the host system (10, 11) and generating a redirection trigger;
 - receiving messages at the host system (10, 11) from a plurality of message senders (26, 28);
 - in response to the redirection trigger, continuously redirecting the received messages from the host system (10, 11) to a mobile data communication device (24) associated with the host system (10, 11);
 - receiving reply messages from the mobile data communication device (24) at the host system (10, 11); and
 - transmitting the configured reply messages from the host system (10, 11) to the plurality of message senders (26, 28),
- wherein the messages are email messages,
characterized by

- configuring the reply messages using address information of the host system (10, 11) such that the reply messages use a first address associated with the host system (10, 11) as originating address.

2. The method of claim 1, further comprising the step of:

- establishing a two-way communication secure link between the host system (10, 11) and the mobile data communication device (24) over a wireless network (22) prior to transmitting redirection information between the host system (10, 11) and the mobile data communication device (24).

3. The method of claim 2, wherein the establishing a two-way communication secure link step further comprises the steps of:

- providing encryption means at the host system (10, 11) for encrypting the redirection informa-

- tion prior to transmission, and corresponding decryption means at the mobile data communication device (24) for decrypting the redirection information.
4. The method of claim 3, wherein the establishing a two-way communication secure link step further comprises the steps of:
- providing packaging means at the host system (10, 11) for packaging the redirection information into electronic envelopes addressed using an electronic address of the mobile data communication device (24) associated with the wireless network (22); and
 - providing unpackaging means at the mobile data communication device (24) for extracting the redirection information from the electronic envelopes.
5. The method of claim 3 or 4, wherein the establishing a two-way communication secure link step further comprises the steps of:
- providing data compression means at the host system (10, 11) for compressing the redirection information prior to redirection; and
 - providing data decompression means at the mobile data communication device (24) for decompressing the compressed redirection information.
6. The method according to one of the previous claims, further comprising the steps of:
- configuring one or more redirection events at the host system (10, 11);
 - detecting that a redirection event has occurred at the host system (10, 11) and generating a redirection trigger;
 - in response to the redirection trigger, executing the transmitting step at the host system (10, 11) in order to transfer redirection information to the mobile data communication device (24).
7. The method according to one of the previous claims, further comprising the steps of:
- configuring one or more redirection events at the mobile data communication device (24);
 - detecting that a redirection event has occurred at the mobile data communication device (24) and generating a redirection trigger;
 - in response to the redirection trigger, executing the transmitting step at the mobile data communication device (24) in order to transfer redirection information to the host system (10, 11).
8. The method according to one of the claims 2 to 7, wherein the redirection information includes copies of the email messages, the method further comprising the steps of:
- receiving the copies of email messages at the mobile data communication device (24);
 - generating reply messages at the mobile data communication device (24) to be sent to a plurality of message senders and transmitting the reply messages to the host system (10, 11);
 - receiving the reply messages at the host system (10, 11) and configuring address information of the reply messages, wherein messages generated at either the host system (10, 11) or the mobile data communication device (24) share the first address; and
 - transmitting the reply messages from the host system (10, 11) to the plurality of message senders (26, 28).
9. The method according to one of the previous claims, further comprising the step of:
- storing information regarding the configuration of the mobile data communication device (24) at the host system (10, 11).
10. The method of claim 9, wherein the configuration information stored at the host system (10, 11) includes:
- the network address of the mobile data communication device (24); and
 - an indication of the types of attachments that the mobile data communication device (24) can receive and process.
11. The method of claim 10, wherein the configuration information further includes:
- an indication of the type of mobile data communication device (24).
12. The method of claim 10, wherein the email messages that have been received at the host system (10, 11) are addressed using a sender address and a receiver address, the method further comprising the steps of:
- determining whether the receiver address is associated with the mobile data communication device (24);
 - if the receiver address is associated with the mobile data communication device (24), then determining a network address of the mobile data communication device (24) and generating redirection information by repackaging the mes-

- sages into electronic envelopes addressed using the receiver address and the network address of the mobile data communication device (24); and
- after receiving the redirection information at the mobile data communication device (24), extracting the messages from the electronic envelopes and displaying the messages at the mobile data communication device (24) using the sender address and the receiver address, so that it appears as though the mobile data communication device (24) is the host system (10, 11).
13. The method according to one of the claims 10 to 12, further comprising the steps of:
- for each message to be redirected, the host system (10, 11) determining whether the message includes an attachment, and if so then determining the type of attachment;
 - accessing the stored configuration information at the host system (10, 11) to determine whether the mobile data communication device (24) can receive and process attachments of the determined type; and
 - if so, then transmitting redirection information regarding the attachments to the mobile data communication device (24), and if not, then transmitting redirection information regarding the attachments to a device (30) that is capable of processing the attachment.
14. The method of claim 13, wherein the type of attachment is an audio clip.
15. The method of claim 6, wherein the redirection events include external events, internal events, or networked events.
16. The method of claim 15, wherein the external event is a message from the mobile data communication device (24) to start redirection.
17. The method of claim 15, wherein the internal event is a calendar alarm.
18. The method of claim 15, wherein the internal event is a screen saver activation.
19. The method of claim 15, wherein the internal event is a keyboard timeout signal.
20. The method of claim 15, wherein the networked events include messages to begin redirection from computer systems other than the mobile data communication device (24), which are connected to the host system (10, 11) via a wired network (18).
21. The method according to one of the previous claims, wherein the mobile data communication device (24) is a pager.
22. The method according to one of the previous claims, wherein the host system (10, 11) includes a preferred list for limiting the redirection step to transmitting redirection information only for those messages that are associated with a sender on the preferred list.
23. The method of claim 22, wherein a user can add and subtract senders from the preferred list.
24. The method of claim 23, wherein the user can add and subtract senders from the preferred list by configuring the host system (10, 11).
25. The method according to one of the claims 23 or 24, wherein the user can add and subtract senders from the preferred list by transmitting a command message from the mobile data communication device (24) to the host system (10, 11).
26. The method according to one of the claims 22 to 25, wherein the preferred list is activated and deactivated at the host system (10, 11).
27. The method according to one of the claims 22 to 26, wherein the preferred list is activated and deactivated by a command message transmitted from the mobile data communication device (24) to the host system (10, 11).
28. A message redirection system operating at a host system (10, 11), the system comprising:
- means for configuring one or more redirection events at the host system (10, 11);
 - means for detecting that a redirection event has occurred at the host system (10, 11) and generating a redirection trigger;
 - means for receiving messages at the host system (10, 11) from a plurality of message senders (26, 28);
 - means for, in response to the redirection trigger, continuously redirecting the received email messages from the host system (10, 11) to a mobile data communication device (24) associated with the host system (10, 11);
 - means for receiving reply messages from the mobile data communication device (24) at the host system (10, 11); and
 - means for transmitting the configured reply messages from the host system (10, 11) to the plurality of message senders (26, 28), wherein the messages are email messages,
- characterized by**

- means for configuring the reply messages using address information of the host system (10, 11) such that the reply messages use a first address associated with the host system (10, 11) as the originating address. 5
- 29.** The system of claim 28, further comprising:
- means for establishing a two-way communication secure link between the host system (10, 11) and the mobile data communication device (24) over a wireless network (22) prior to transmitting redirection information between the host system (10, 11) and the mobile data communication device (24). 10
- 30.** The system of claim 29, further comprising:
- encryption means at the host system (10, 11) for encrypting the redirection information prior to transmission; and 20
- decryption means at the mobile data communication device (24) for decrypting the redirection information. 25
- 31.** The system of claim 30, further comprising:
- packaging means at the host system (10, 11) for packaging the redirection information into electronic envelopes addressed using an electronic address of the mobile data communication device (24) associated with the wireless network (22); and 30
- unpackaging means at the mobile data communication device (24) for extracting the redirection information from the electronic envelopes. 35
- 32.** The system of claim 30 or 31, further comprising:
- data compression means at the host system (10, 11) for compressing the redirection information prior to redirection; and 40
- data decompression means at the mobile data communication device (24) for decompressing the compressed redirection information. 45
- 33.** The system according to one of the claims 28 to 32, further comprising:
- means for storing information regarding the configuration of the mobile data communication device (24) at the host system (10, 11). 50
- 34.** The system of claim 33, wherein the configuration information stored at the host system (10, 11) includes: 55
- the network address of the mobile data communication device (24); and
- an indication of the types of attachments that the mobile data communication device (24) can receive and process.
- 35.** The system of claim 34, wherein the configuration information further includes:
- an indication of the type of mobile data communication device (24).
- 36.** The system of claim 34, wherein the email messages that have been received at the host system (10, 11) are addressed using a sender address and a receiver address, the system further comprising:
- means for determining whether the receiver address is associated with the mobile data communication device (24);
- means for determining a network address of the mobile data communication device (24) and generating redirection information by repackaging the messages into electronic envelopes addressed using the receiver address and the network address of the mobile data communication device (24) if the receiver address is associated with the mobile data communication device (24); and
- means for, after receiving the redirection information at the mobile data communication device (24), extracting the messages from the electronic envelopes and displaying the messages at the mobile data communication device (24) using the sender address and the receiver address, so that it appears as though the mobile data communication device (24) is the host system (10, 11).
- 37.** The system according to one of claims 28 to 36, wherein the mobile data communication device (24) is a pager.

Patentansprüche

- 1.** Nachrichten-Um- bzw. Weiterleitungs-Verfahren, das an einem Hostsystem (10, 11) arbeitet, das die Schritte aufweist:
- Konfigurieren eines oder mehrerer Um- bzw. Weiterleitungs-Ereignisse an dem Hostsystem (10, 11);
- Erfassen, dass ein Umleitungsereignis an dem Hostsystem (10, 11) stattgefunden hat, und Erzeugen eines Umleitungsauslösers;
- Empfangen von Nachrichten an dem Hostsystem (10, 11) von einer Vielzahl von Nachrichten-

- tensendem (26, 28);
 - als Reaktion auf den Umleitungsauslöser kontinuierliches Umleiten der empfangenen Nachrichten von dem Hostsystem (10, 11) zu einer mobilen Datenkommunikationsvorrichtung (24), die zu dem Hostsystem (10, 11) gehört;
 - Empfangen von Antwortnachrichten von der mobilen Datenkommunikationsvorrichtung (24) an dem Hostsystem (10, 11); und
 - Übertragen der konfigurierten Antwortnachrichten von dem Hostsystem (10, 11) an die Vielzahl von Nachrichtensender (26, 28),
- wobei die Nachrichten Email-Nachrichten sind, **gekennzeichnet durch**
- Konfigurieren der Antwortnachrichten unter Verwendung einer Adressinformation des Hostsystems (10, 11) derart, dass die Antwortnachrichten eine erste Adresse, die zu dem Hostsystem (10, 11) gehört, als Ursprungsadresse verwenden.
2. Verfahren gemäß Anspruch 1, das weiter den Schritt aufweist:
 - Einrichten einer sicheren Zweiwegkommunikationsverbindung zwischen dem Hostsystem (10, 11) und der mobilen Datenkommunikationsvorrichtung (24) über ein drahtloses Netzwerk (22) vor einer Übertragung von Umleitungsinformation zwischen dem Hostsystem (10, 11) und der mobilen Datenkommunikationsvorrichtung (24).
 3. Verfahren gemäß Anspruch 2, wobei der Schritt des Einrichtens einer sicheren Zweiwegkommunikationsverbindung weiter die Schritte aufweist:
 - Vorsehen von Verschlüsselungsmitteln an dem Hostsystem (10, 11) zum Verschlüsseln der Umleitungsinformation vor einer Übertragung, und entsprechenden Entschlüsselungsmitteln an der mobilen Datenkommunikationsvorrichtung (24) zum Entschlüsseln der Umleitungsinformation.
 4. Verfahren gemäß Anspruch 3, wobei der Schritt des Einrichtens einer sicheren Zweiwegkommunikationsverbindung weiter die Schritte aufweist:
 - Vorsehen von Verpackungsmitteln an dem Hostsystem (10, 11) zum Verpacken der Umleitungsinformation in elektronische Umschläge, die adressiert werden unter Verwendung einer elektronischen Adresse der mobilen Datenkommunikationsvorrichtung (24), die zu dem drahtlosen Netzwerk (22) gehört; und
 - Vorsehen von Entpackungsmitteln an der mobilen Datenkommunikationsvorrichtung (24) zum Extrahieren der Umleitungsinformation aus den elektronischen Umschlägen.
 5. Verfahren gemäß Anspruch 3 oder 4, wobei der Schritt des Einrichtens einer sicheren Zweiwegkommunikationsverbindung weiter die Schritte aufweist:
 - Vorsehen von Datenkomprimierungsmitteln an dem Hostsystem (10, 11) zum Komprimieren der Umleitungsinformation vor einer Umleitung; und
 - Vorsehen von Datendekomprimierungsmitteln an der mobilen Datenkommunikationsvorrichtung (24) zum Dekomprimieren der komprimierten Umleitungsinformation.
 6. Verfahren gemäß einem der vorhergehenden Ansprüche, das weiter die Schritte aufweist:
 - Konfigurieren eines oder mehrerer Umleitungsereignisse an dem Hostsystem (10, 11);
 - Erfassen, dass ein Umleitungsereignis an dem Hostsystem (10, 11) stattgefunden hat, und Erzeugen eines Umleitungsauslösers;
 - als Reaktion auf den Umleitungsauslöser, Ausführen des Übertragungsschritts an dem Hostsystem (10, 11), um eine Umleitungsinformation an die mobile Datenkommunikationsvorrichtung (24) zu übertragen.
 7. Verfahren gemäß einem der vorhergehenden Ansprüche, das weiter die Schritte aufweist:
 - Konfigurieren eines oder mehrerer Umleitungsereignisse an der mobilen Datenkommunikationsvorrichtung (24);
 - Erfassen, dass ein Umleitungsereignis an der mobilen Datenkommunikationsvorrichtung (24) stattgefunden hat, und Erzeugen eines Umleitungsauslösers;
 - als Reaktion auf den Umleitungsauslöser, Ausführen des Übertragungsschritts an der mobilen Datenkommunikationsvorrichtung (24), um eine Umleitungsinformation an das Hostsystem (10, 11) zu übertragen.
 8. Verfahren gemäß einem der Ansprüche 2 bis 7, wobei die Umleitungsinformation Kopien der Email-Nachrichten aufweist, wobei das Verfahren weiter die Schritte aufweist:
 - Empfangen der Kopien von Email-Nachrichten an der mobilen Datenkommunikationsvorrichtung (24);
 - Erzeugen von Antwortnachrichten an der mobilen Datenkommunikationsvorrichtung (24)

- zum Senden an eine Vielzahl von Nachrichtensendern und Übertragen der Antwortnachrichten an das Hostsystem (10, 11);
- Empfangen der Antwortnachrichten an dem Hostsystem (10, 11) und Konfigurieren einer Adressinformation der Antwortnachrichten, wobei Nachrichten, die entweder an dem Hostsystem (10, 11) oder der mobilen Datenkommunikationsvorrichtung (24) erzeugt werden, die gleiche erste Adresse haben; und
 - Übertragen der Antwortnachrichten von dem Hostsystem (10, 11) an die Vielzahl von Nachrichtensendern (26, 28).
- 9.** Verfahren gemäß einem der vorhergehenden Ansprüche, das weiter den Schritt aufweist:
- Speichern von Information hinsichtlich der Konfiguration der mobilen Datenkommunikationsvorrichtung (24) an dem Hostsystem (10, 11).
- 10.** Verfahren gemäß Anspruch 9, wobei die Konfigurationsinformation, die an den Hostsystem (10, 11) gespeichert ist, umfasst:
- die Netzwerkadresse der mobilen Datenkommunikationsvorrichtung (24); und
 - eine Anzeige der Typen von Anhängen, welche die mobile Datenkommunikationsvorrichtung (24) empfangen und verarbeiten kann.
- 11.** Verfahren gemäß Anspruch 10, wobei die Konfigurationsinformation weiter umfasst:
- eine Anzeige des Typs der mobilen Datenkommunikationsvorrichtung (24).
- 12.** Verfahren gemäß Anspruch 10, wobei die Email-Nachrichten, die an dem Hostsystem (10, 11) empfangen werden, adressiert werden unter Verwendung einer Senderadresse und einer Empfängeradresse, wobei das Verfahren weiter die Schritte aufweist:
- Bestimmen, ob die Empfängeradresse zu der mobilen Datenkommunikationsvorrichtung (24) gehört;
 - wenn die Empfängeradresse zu der mobilen Datenkommunikationsvorrichtung (24) gehört, dann Bestimmen einer Netzwerkadresse der mobilen Datenkommunikationsvorrichtung (24) und Erzeugen von Umleitungsinformation durch Neuverpacken der Nachrichten in elektronische Umschläge, die adressiert werden unter Verwendung der Empfängeradresse und der Netzwerkadresse der mobilen Datenkommunikationsvorrichtung (24); und
 - nach dem Empfangen der Umleitungsinformation an der mobilen Datenkommunikationsvorrichtung (24), Extrahieren der Nachrichten aus den elektronischen Umschlägen und Anzeigen der Nachrichten an der mobilen Datenkommunikationsvorrichtung (24) unter Verwendung der Senderadresse und der Empfängeradresse, so dass es scheint, als ob die mobile Datenkommunikationsvorrichtung (24) das Hostsystem (10, 11) ist.
- 13.** Verfahren gemäß einem der Ansprüche 10 bis 12, das weiter die Schritte aufweist:
- für jede umzuleitende Nachricht, Bestimmen durch das Hostsystem (10, 11), ob die Nachricht einen Anhang umfasst, und wenn ja, dann Bestimmen des Typs des Anhangs;
 - Zugreifen auf die gespeicherte Konfigurationsinformation an dem Hostsystem (10, 11), um zu bestimmen, ob die mobile Datenkommunikationsvorrichtung (24) Anhänge des bestimmten Typs empfangen und verarbeiten kann; und
 - wenn ja, dann Übertragen von Umleitungsinformation hinsichtlich der Anhänge an die mobile Datenkommunikationsvorrichtung (24), und wenn nicht, dann Übertragen von Umleitungsinformation hinsichtlich der Anhänge an eine Vorrichtung (30), die den Anhang verarbeiten kann.
- 14.** Verfahren gemäß Anspruch 13, wobei der Typ des Anhangs ein Audio-Clip ist.
- 15.** Verfahren gemäß Anspruch 6, wobei die Umleitungsergebnisse externe Ereignisse, interne Ereignisse oder Netzwerk-Ereignisse umfassen.
- 16.** Verfahren gemäß Anspruch 15, wobei das externe Ereignis eine Nachricht von der mobilen Datenkommunikationsvorrichtung (24) zum Start einer Um- bzw. Weiterleitung ist.
- 17.** Verfahren gemäß Anspruch 15, wobei das interne Ereignis ein Kalenderalarm ist.
- 18.** Verfahren gemäß Anspruch 15, wobei das interne Ereignis eine Aktivierung des Bildschirmschoners ist.
- 19.** Verfahren gemäß Anspruch 15, wobei das interne Ereignis ein Tastatur-Timeout-Signal ist.
- 20.** Verfahren gemäß Anspruch 15, wobei die Netzwerk-Ereignisse Nachrichten zum Beginnen einer Um- bzw. Weiterleitung von Computersystemen umfassen, die nicht die mobile Datenkommunikationsvorrichtung (24) sind, die mit dem Hostsystem (10, 11)

über ein verdrahtetes Netzwerk (18) verbunden sind.

21. Verfahren gemäß einem der vorhergehenden Ansprüche, wobei die mobile Datenkommunikationsvorrichtung (24) ein Pager ist. 5
22. Verfahren gemäß einem der vorhergehenden Ansprüche, wobei das Hostsystem (10, 11) eine bevorzugte Liste zum Begrenzen des Umleitungsschrittes auf ein Übertragen von Umleitungsinformation nur für die Nachrichten umfasst, die zu einem Sender auf der bevorzugten Liste gehören. 10
23. Verfahren gemäß Anspruch 22, wobei ein Benutzer Sender zu der bevorzugten Liste hinzufügen und davon entfernen kann. 15
24. Verfahren gemäß Anspruch 23, wobei der Benutzer Sender zu der bevorzugten Liste hinzufügen und davon entfernen kann durch Konfigurieren des Hostsystems (10, 11). 20
25. Verfahren gemäß einem der Ansprüche 23 oder 24, wobei der Benutzer Sender zu der bevorzugten Liste hinzufügen und davon entfernen kann durch Senden einer Anweisungsnachricht von der mobilen Datenkommunikationsvorrichtung (24) an das Hostsystem (10, 11). 25
26. Verfahren gemäß einem der Ansprüche 22 bis 25, wobei die bevorzugte Liste an dem Hostsystem (10, 11) aktiviert und deaktiviert wird. 30
27. Verfahren gemäß einem der Ansprüche 22 bis 26, wobei die bevorzugte Liste aktiviert und deaktiviert wird durch eine Anweisungsnachricht, die von der mobilen Datenkommunikationsvorrichtung (24) an das Hostsystem (10, 11) gesendet wird. 35
28. Nachrichten-Um- bzw. Weiterleitungssystem, das an einem Hostsystem (10, 11) arbeitet, wobei das System aufweist: 40
 - Mittel zum Konfigurieren eines oder mehrerer Um- bzw. Weiterleitungs-Ereignisse an dem Hostsystem (10, 11); 45
 - Mittel zum Erfassen, dass ein Umleitungseignis an dem Hostsystem (10, 11) stattgefunden hat, und Erzeugen eines Umleitungsauslösers; 50
 - Mittel zum Empfangen von Nachrichten an dem Hostsystem (10, 11) von einer Vielzahl von Nachrichtensendern (26, 28);
 - Mittel zum, als Reaktion auf den Umleitungsauslöser, kontinuierlichen Umleiten der empfangenen Email-Nachrichten von dem Hostsystem (10, 11) zu einer mobilen Datenkommunikationsvorrichtung (24), die zu dem Hostsystem 55

(10, 11) gehört;

- Mittel zum Empfangen von Antwortnachrichten von der mobilen Datenkommunikationsvorrichtung (24) an dem Hostsystem (10, 11); und
- Mittel zum Übertragen der konfigurierten Antwortnachrichten von dem Hostsystem (10, 11) an die Vielzahl von Nachrichtensender (26, 28),

wobei die Nachrichten Email-Nachrichten sind, **gekennzeichnet durch**

- Mittel zum Konfigurieren der Antwortnachrichten unter Verwendung einer Adressinformation des Hostsystems (10, 11) derart, dass die Antwortnachrichten eine erste Adresse, die zu dem Hostsystem (10, 11) gehört, als die Ursprungsadresse verwenden.

29. System gemäß Anspruch 28, das weiter aufweist:

- Mittel zum Einrichten einer sicheren Zweiwegkommunikationsverbindung zwischen dem Hostsystem (10, 11) und der mobilen Datenkommunikationsvorrichtung (24) über ein drahtloses Netzwerk (22) vor einer Übertragung von Umleitungsinformation zwischen dem Hostsystem (10, 11) und der mobilen Datenkommunikationsvorrichtung (24).

30. System gemäß Anspruch 29, das weiter aufweist:

- Verschlüsselungsmittel an dem Hostsystem (10, 11) zum Verschlüsseln der Umleitungsinformation vor einer Übertragung; und
- Entschlüsselungsmittel an der mobilen Datenkommunikationsvorrichtung (24) zum Entschlüsseln der Umleitungsinformation.

31. System gemäß Anspruch 30, das weiter aufweist:

- Verpackungsmittel an dem Hostsystem (10, 11) zum Verpacken der Umleitungsinformation in elektronische Umschläge, die adressiert werden unter Verwendung einer elektronischen Adresse der mobilen Datenkommunikationsvorrichtung (24), die zu dem drahtlosen Netzwerk (22) gehört; und
- Entpackungsmittel an der mobilen Datenkommunikationsvorrichtung (24) zum Extrahieren der Umleitungsinformation aus den elektronischen Umschlägen.

32. System gemäß Anspruch 30 oder 31, das weiter aufweist:

- Datenkomprimierungsmittel an dem Hostsystem (10, 11) zum Komprimieren der Umleitungsinformation vor einer Umleitung; und

- Datendekomprimierungsmittel an der mobilen Datenkommunikationsvorrichtung (24) zum Dekomprimieren der komprimierten Umleitungsinformation.

33. System gemäß einem der Ansprüche 28 bis 32, das weiter aufweist:

- Mittel zum Speichern von Information hinsichtlich der Konfiguration der mobilen Datenkommunikationsvorrichtung (24) an dem Hostsystem (10, 11).

34. System gemäß Anspruch 33, wobei die Konfigurationsinformation, die an dem Hostsystem (10, 11) gespeichert ist, umfasst:

- die Netzwerkadresse der mobilen Datenkommunikationsvorrichtung (24); und
- eine Anzeige der Typen von Anhängen, welche die mobile Datenkommunikationsvorrichtung (24) empfangen und verarbeiten kann.

35. System gemäß Anspruch 34, wobei die Konfigurationsinformation weiter umfasst:

- eine Anzeige des Typs der mobilen Datenkommunikationsvorrichtung (24).

36. System gemäß Anspruch 34, wobei die Email-Nachrichten, die an dem Hostsystem (10, 11) empfangen werden, adressiert werden unter Verwendung einer Senderadresse und einer Empfängeradresse, wobei das System weiter aufweist:

- Mittel zum Bestimmen, ob die Empfängeradresse zu der mobilen Datenkommunikationsvorrichtung (24) gehört;
- Mittel zum Bestimmen einer Netzwerkadresse der mobilen Datenkommunikationsvorrichtung (24) und Erzeugen von Umleitungsinformation durch Neuverpacken der Nachrichten in elektronische Umschläge, die adressiert werden unter Verwendung der Empfängeradresse und der Netzwerkadresse der mobilen Datenkommunikationsvorrichtung (24), wenn die Empfängeradresse zu der mobilen Datenkommunikationsvorrichtung (24) gehört; und
- Mittel zum, nach dem Empfangen der Umleitungsinformation an der mobilen Datenkommunikationsvorrichtung (24), Extrahieren der Nachrichten aus den elektronischen Umschlägen und Anzeigen der Nachrichten an der mobilen Datenkommunikationsvorrichtung (24) unter Verwendung der Senderadresse und der Empfängeradresse, so dass es scheint, als ob die mobile Datenkommunikationsvorrichtung (24) das Hostsystem (10, 11) ist.

37. System gemäß einem der Ansprüche 28 bis 36, wobei die mobile Datenkommunikationsvorrichtung (24) ein Pager ist.

5

Revendications

1. Procédé de réacheminement de messages fonctionnant au niveau d'un système hôte (10, 11), comprenant les étapes qui consistent :

- à configurer un ou plusieurs événements de réacheminement au système hôte (10, 11),
- à détecter qu'un événement de réacheminement a eu lieu au système hôte (10, 11) et à générer un déclencheur de réacheminement ;
- à recevoir des messages au système hôte (10, 11) en provenance de multiples envoyeurs de message (26, 28) ;
- en réponse au déclencheur de réacheminement, à réacheminer en continu les messages reçus du système hôte (10, 11) à un dispositif de communication mobile de données (24) associé au système hôte (10, 11) ;
- à recevoir des messages de réponse depuis le dispositif de communication mobile (24) de données au système hôte (10, 11) ; et
- à transmettre les messages de réponse configurés du système hôte (10, 11) aux multiples envoyeurs de messages (26, 28),

dans lequel les messages sont des messages de courrier électronique,

caractérisé par

- la configuration des messages de réponse en utilisant une information d'adresse du système hôte (10, 11) de manière que les messages de réponse utilisent une première adresse associée au système hôte (10, 11) en tant qu'adresse d'origine.

2. Procédé selon la revendication 1, comprenant en outre l'étape qui consiste :

- à établir une liaison sécurisée de communication bidirectionnelle entre le système hôte (10, 11) et le dispositif de communication mobile (24) de données sur un réseau sans fil (22) avant la transmission d'une information de réacheminement entre le système hôte (10, 11) et le dispositif de communication mobile (24) de données.

3. Procédé selon la revendication 2, dans lequel l'établissement d'une liaison sécurisée de communication bidirectionnelle comprend en outre les étapes qui consistent :

- à prévoir un moyen de cryptage au système hôte (10, 11) pour crypter l'information de réacheminement avant l'émission, et un moyen de décryptage correspondant au niveau du dispositif de communication mobile (24) de données pour décrypter l'information de réacheminement. 5
4. Procédé selon la revendication 3, dans lequel l'étape d'établissement d'une liaison sécurisée de communication bidirectionnelle comprend les étapes qui consistent : 10
- à prévoir un moyen de conditionnement au niveau du système hôte (10, 11) pour conditionner l'information de réacheminement dans des enveloppes électroniques adressées en utilisant une adresse électronique du dispositif de communication mobile (24) de données associé au réseau sans fil (22) ; et 15
- à prévoir un moyen de déconditionnement au niveau du dispositif de communication mobile (24) de données pour extraire des enveloppes électroniques l'information de réacheminement. 20
5. Procédé selon la revendication 3 ou 4, dans lequel l'étape d'établissement d'une liaison sécurisée de communication bidirectionnelle comprend en outre les étapes qui consistent : 25
- à prévoir un moyen de compression de données au système hôte (10, 11) pour comprimer l'information de réacheminement avant le réacheminement ; et 30
- à prévoir un moyen de décompression de données au dispositif de communication mobile (24) de données pour décompresser l'information de réacheminement comprimée. 35
6. Procédé selon l'une quelconque des revendications précédentes, comprenant en outre les étapes qui consistent : 40
- à configurer un ou plusieurs événements de réacheminement au système hôte (10, 11) ; 45
- à détecter qu'un événement de réacheminement a eu lieu au système hôte (10, 11) et à générer un déclencheur de réacheminement ;
- en réponse au déclencheur de réacheminement, à exécuter l'étape de transmission au système hôte (10, 11) afin de transférer une information de réacheminement au dispositif de communication mobile (24) de données. 50
7. Procédé selon l'une quelconque des revendications précédentes, comprenant en outre les étapes qui consistent : 55
- à configurer un ou plusieurs événements de réacheminement au dispositif de communication mobile (24) de données ;
- à détecter qu'un événement de réacheminement a eu lieu au dispositif de communication mobile (24) de données et à générer un déclencheur de réacheminement ;
- en réponse au déclencheur de réacheminement, à exécuter l'étape de transmission au niveau du dispositif de communication mobile (24) de données afin de transférer l'information de réacheminement au système hôte (10, 11). 60
8. Procédé selon l'une des revendications 2 à 7, dans lequel l'information de réacheminement comprend des copies des messages de courrier électronique, le procédé comprenant en outre les étapes qui consistent : 65
- à recevoir les copies de messages de courrier électronique au dispositif de communication mobile (24) de données ;
- à générer des messages de réponse au niveau du dispositif de communication mobile (24) de données, devant être envoyés à de multiples envoyeurs de messages et à transmettre les messages de réponse au système hôte (10, 11) ;
- à recevoir les messages de réponse au système hôte (10, 11) et à configurer une information d'adresse des messages de réponse, les messages générés au système hôte (10, 11) ou au dispositif de communication mobile (24) de données ayant en commun la première adresse ; et
- à transmettre les messages de réponse du système hôte (10, 11) aux multiples envoyeurs de message (26, 28). 70
9. Procédé selon l'une des revendications précédentes, comprenant en outre l'étape qui consiste : 75
- à stocker au système hôte (10, 11) une information concernant la configuration du dispositif de communication mobile (24) de données. 80
10. Procédé selon la revendication 9, dans lequel l'information de configuration stockée au système hôte (10, 11) comprend : 85
- l'adresse dans le réseau du dispositif de communication mobile (24) de données ; et
- une indication des types d'accessoires que le dispositif de communication mobile (24) de données peut recevoir et traiter. 90
11. Procédé selon la revendication 10, dans lequel l'information de configuration comprend en outre : 95

- une indication du type du dispositif de communication mobile (24) de données.
- 12.** Procédé selon la revendication 10, dans lequel les messages de courrier électronique qui ont été reçus au système hôte (10, 11) sont adressés en utilisant une adresse d'expéditeur et une adresse de destinataire, le procédé comprenant en outre les étapes qui consistent :
- à déterminer si l'adresse de destinataire est associée au dispositif de communication mobile (24) de données ;
 - si l'adresse de destinataire est associée au dispositif de communication mobile (24) de données, à déterminer alors une adresse dans le réseau du dispositif de communication mobile (24) de données et à générer une information de réacheminement en reconditionnant les messages dans des enveloppes électroniques adressées en utilisant l'adresse de destinataire et l'adresse dans le réseau du dispositif de communication mobile (24) de données ; et
 - après la réception de l'information de réacheminement au dispositif de communication mobile (24) de données, à extraire les messages des enveloppes électroniques et à afficher les messages au dispositif de communication mobile (24) de données en utilisant l'adresse d'expéditeur et l'adresse de destinataire, afin qu'elle apparaisse comme si le dispositif de communication mobile (24) de données était le système hôte (10, 11).
- 13.** Procédé selon l'une des revendications 10 à 12, comprenant en outre les étapes qui consistent :
- pour chaque message devant être réacheminé, à déterminer par le système hôte (10, 11) si le message comprend une pièce jointe, et, s'il en est ainsi, à déterminer ensuite le type de pièce jointe ;
 - à accéder à l'information de configuration stockée au système hôte (10, 11) afin de déterminer si le dispositif de communication mobile (24) de données peut recevoir et traiter des pièces jointes du type déterminé ; et
 - s'il en est ainsi, à transmettre alors une information de réacheminement concernant les pièces jointes au dispositif de communication mobile (24) de données et, s'il n'en est pas ainsi, à transmettre alors une information de réacheminement concernant les pièces jointes à un dispositif (30) qui est capable de traiter la pièce jointe.
- 14.** Procédé selon la revendication 13, dans lequel le type de pièce jointe est un insert audio.
- 15.** Procédé selon la revendication 6, dans lequel les événements de réacheminement comprennent des événements extérieurs, des événements intérieurs ou des événements en réseau.
- 16.** Procédé selon la revendication 15, dans lequel l'événement extérieur est un message provenant du dispositif de communication mobile (24) de données pour commencer un réacheminement.
- 17.** Procédé selon la revendication 15, dans lequel le message intérieur est une alarme calendrier.
- 18.** Procédé selon la revendication 15, dans lequel l'événement intérieur est une activation d'économiseur d'écran.
- 19.** Procédé selon la revendication 15, dans lequel l'événement intérieur est un signal de temporisation de clavier.
- 20.** Procédé selon la revendication 15, dans lequel les événements en réseau comprennent des messages pour commencer un réacheminement depuis des systèmes informatiques autres que le dispositif de communication mobile (24) de données, qui sont connectés au système hôte (10, 11) par l'intermédiaire d'un réseau câblé (18).
- 21.** Procédé selon l'une des revendications précédentes, dans lequel le dispositif de communication mobile (24) de données est un dispositif de radiomessagerie.
- 22.** Procédé selon l'une des revendications précédentes, dans lequel le système hôte (10, 11) comprend une liste préférée pour limiter l'étape de réacheminement à la transmission d'une information de réacheminement uniquement pour des messages qui sont associés à un expéditeur sur la liste préférée.
- 23.** Procédé selon la revendication 22, dans lequel un utilisateur peut ajouter et soustraire des expéditeurs de la liste préférée.
- 24.** Procédé selon la revendication 23, dans lequel l'utilisateur peut ajouter et soustraire des expéditeurs de la liste préférée en configurant le système hôte (10, 11).
- 25.** Procédé selon l'une des revendications 23 et 24, dans lequel l'utilisateur peut ajouter et soustraire des expéditeurs de la liste préférée en transmettant un message d'ordre du dispositif de communication mobile (24) de données au système hôte (10, 11).
- 26.** Procédé selon l'une des revendications 22 à 25, dans lequel la liste préférée est activée et désactivée

au système hôte (10, 11).

27. Procédé selon l'une des revendications 22 à 26, dans lequel la liste préférée est activée et désactivée par un message d'ordre transmis du dispositif de communication mobile (24) de données au système hôte (10, 11).

28. Système de réacheminement de messages fonctionnant à un système hôte (10, 11), le système comportant :

- un moyen pour configurer un ou plusieurs événements de réacheminement au système hôte (10, 11) ;
- un moyen pour détecter qu'un événement de réacheminement a eu lieu au système hôte (10, 11) et pour générer un déclencheur de réacheminement ;
- un moyen pour recevoir des messages au système hôte (10, 11) depuis de multiples envoyeurs (26, 28) de messages ;
- un moyen pour, en réponse au déclencheur de réacheminement, réacheminer en continu des messages de courrier électronique reçus du système hôte (10, 11) vers un dispositif de communication mobile (24) de données associé au système hôte (10, 11) ;
- un moyen destiné à recevoir au système hôte (10, 11) des messages de réponse en provenance du dispositif de communication mobile (24) de données ; et
- un moyen destiné à transmettre les messages de réponse configurés du système hôte (10, 11) aux multiples envoyeurs de message (26, 28),

dans lequel les messages sont des messages de courrier électronique, **caractérisé par**

- un moyen destiné à configurer les messages de réponse en utilisant une information d'adresse du système hôte (10, 11) de manière que les messages de réponse utilisent une première adresse associée au système hôte (10, 11) en tant qu'adresse d'origine.

29. Système selon la revendication 28, comportant en outre :

- un moyen destiné à établir une liaison sécurisée de communication bidirectionnelle entre le système hôte (10, 11) et le dispositif de communication mobile (24) de données en passant par un réseau sans fil (22) avant la transmission d'une information de réacheminement entre le système hôte (10, 11) et le dispositif de communication mobile (24) de données.

30. Système selon la revendication 29, comportant en outre :

- un moyen de cryptage au système hôte (10, 11) destiné à crypter l'information de réacheminement avant l'émission ; et
- un moyen de décryptage au dispositif de communication mobile (24) de données destiné à décrypter l'information de réacheminement.

31. Système selon la revendication 30, comportant en outre :

- un moyen de conditionnement au système hôte (10, 11) destiné à conditionner l'information de réacheminement dans des enveloppes électroniques adressées en utilisant une adresse électronique du dispositif de communication mobile (24) de données associé au réseau sans fil (22) ; et
- un moyen de déconditionnement du dispositif de communication mobile (24) de données destiné à extraire des enveloppes électroniques l'information de réacheminement.

32. Système selon la revendication 30 ou 31, comportant en outre :

- un moyen de compression de données au système hôte (10, 11) destiné à comprimer l'information de réacheminement avant le réacheminement ; et
- un moyen de décompression de données au dispositif de communication mobile (24) de données destiné à décompresser l'information de réacheminement comprimée.

33. Système selon l'une des revendications 28 à 32, comportant en outre :

- un moyen destiné à stocker au système hôte (10, 11), une information concernant la configuration du dispositif de communication mobile (24) de données.

34. Système selon la revendication 33, dans lequel l'information de configuration stockée au système hôte (10, 11) comprend :

- l'adresse dans le réseau du dispositif de communication mobile (24) de données ; et
- une indication des types de pièces jointes que le dispositif de communication mobile (24) de données peut recevoir et traiter.

35. Système selon la revendication 34, dans lequel l'information de configuration comprend en outre :

- une indication du type du dispositif de communication mobile (24) de données.

36. Système selon la revendication 34, dans lequel les messages de courrier électronique qui ont été reçus au système hôte (10, 11) sont adressés en utilisant une adresse d'expéditeur et une adresse de destinataire, le système comportant en outre :

- un moyen destiné à déterminer si l'adresse de destinataire est associée au dispositif de communication mobile (24) de données ;
- un moyen destiné à déterminer une adresse dans le réseau du dispositif de communication mobile (24) de données et à générer une information de réacheminement en reconditionnant les messages dans des enveloppes électroniques adressées en utilisant l'adresse de destinataire et l'adresse dans le réseau du dispositif de communication mobile (24) de données si l'adresse de destinataire est associée au dispositif de communication mobile (24) de données ; et
- un moyen destiné, après la réception de l'information de réacheminement au dispositif de communication mobile (24) de données, à extraire des enveloppes électroniques les messages et à afficher les messages au dispositif de communication mobile (24) de données en utilisant l'adresse d'expéditeur et l'adresse de destinataire, afin qu'elle apparaisse comme si le dispositif de communication mobile (24) de données était le système hôte (10, 11).

37. Système selon l'une des revendications 28 à 36, dans lequel le dispositif de communication mobile (24) de données est un dispositif de radiomessagerie.

40

45

50

55

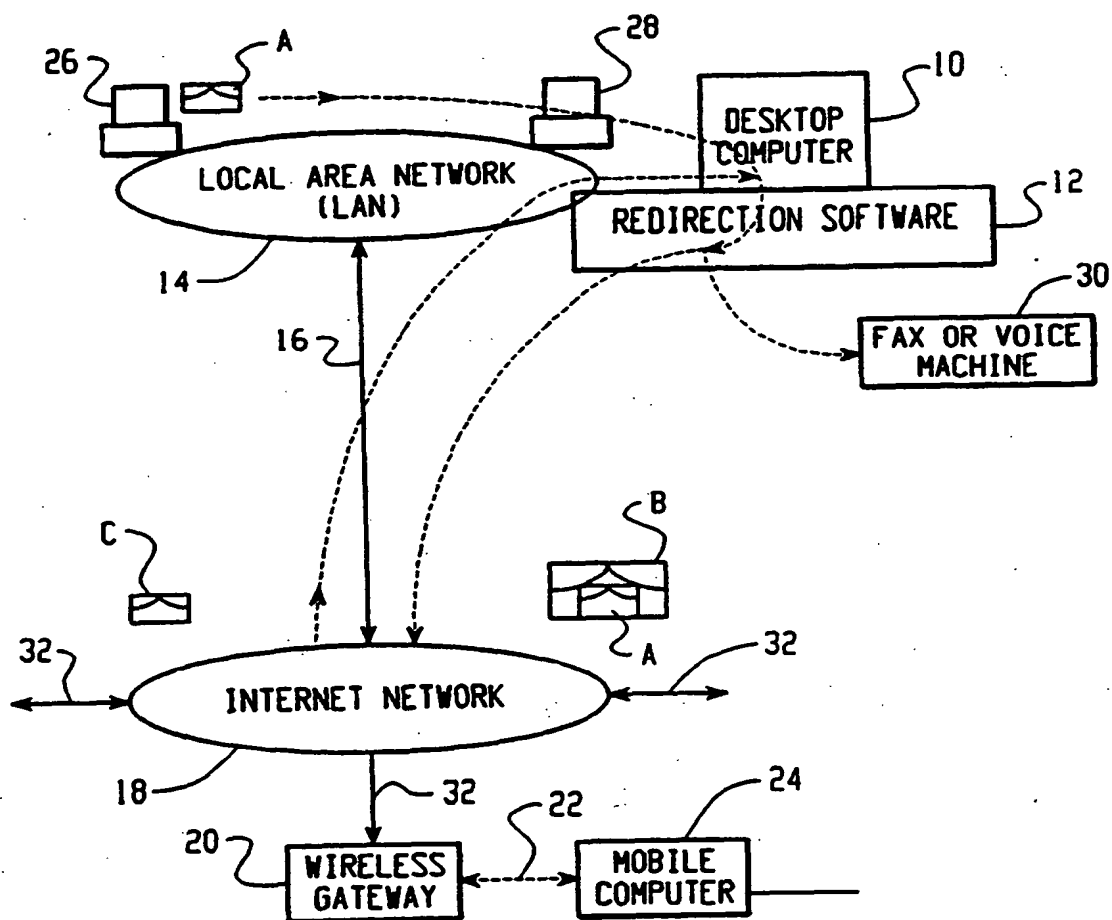


Fig. 1

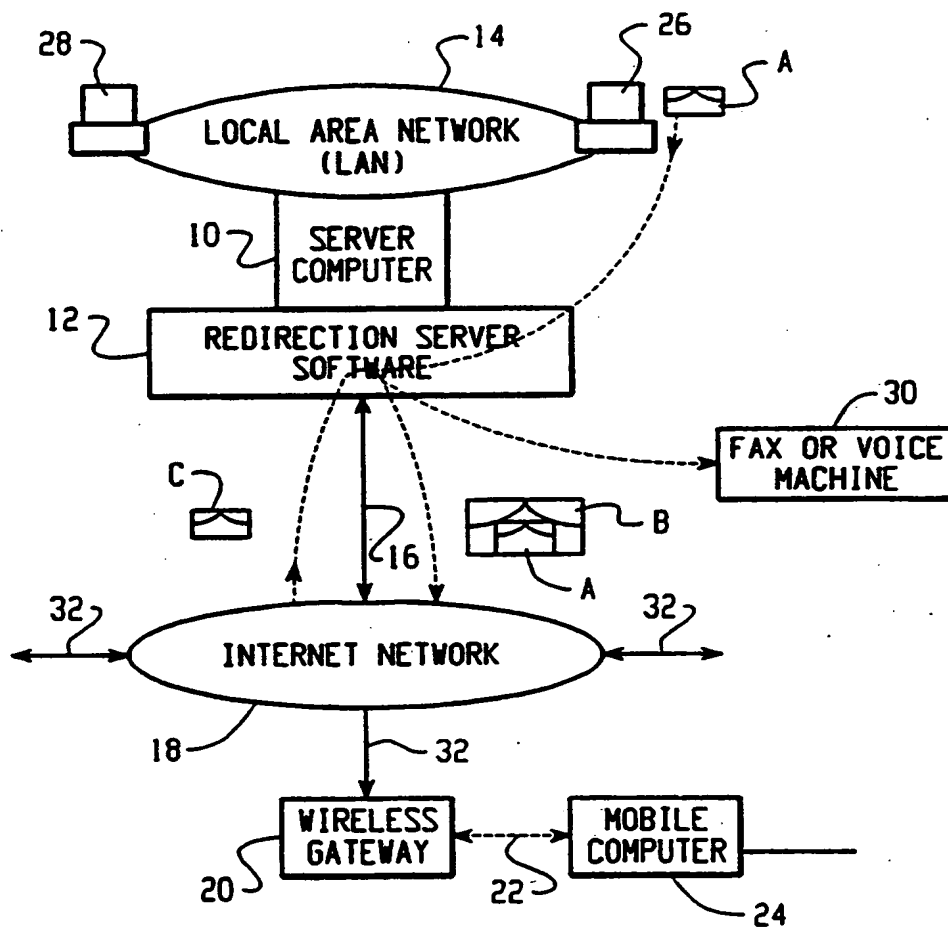


Fig. 2

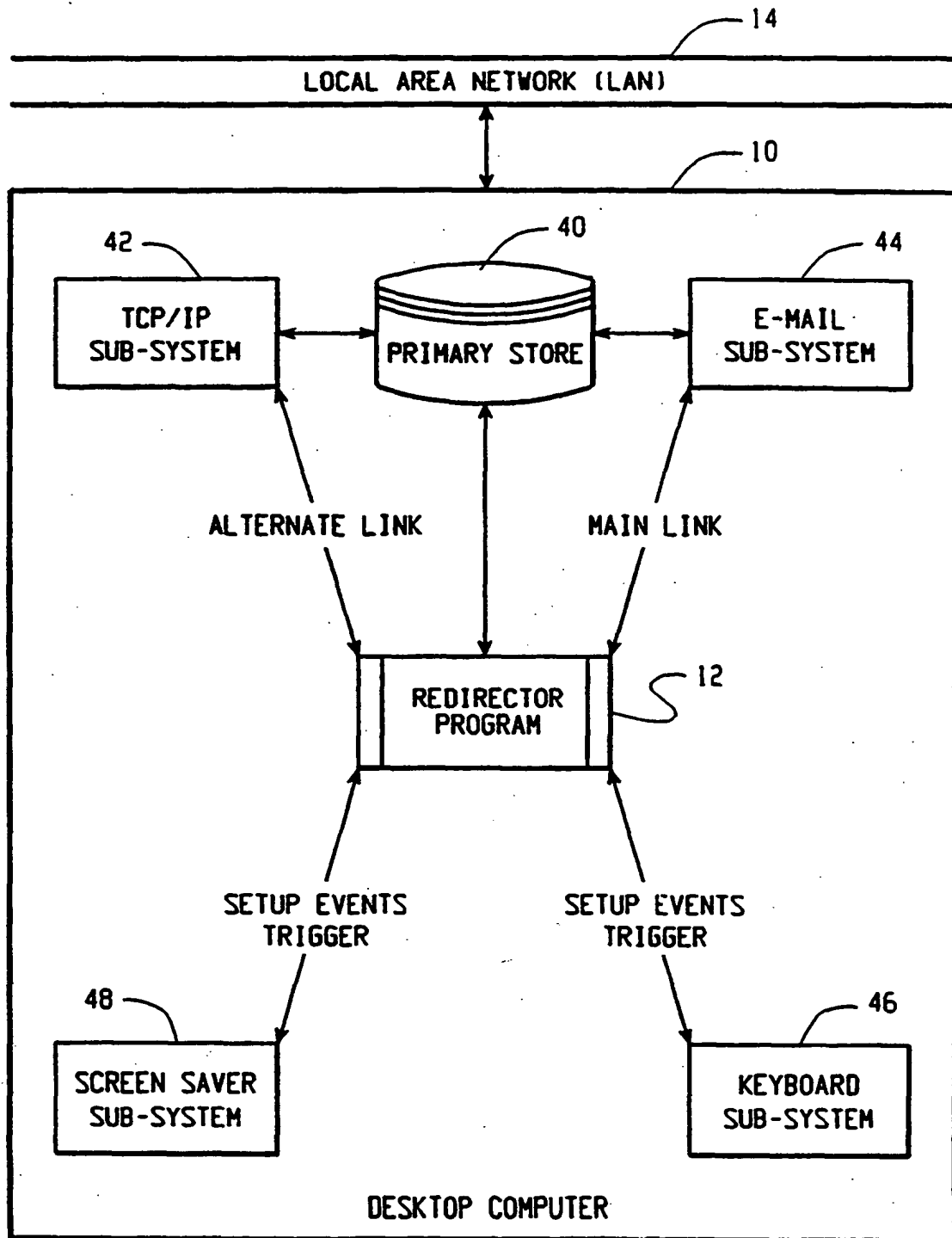


Fig. 3

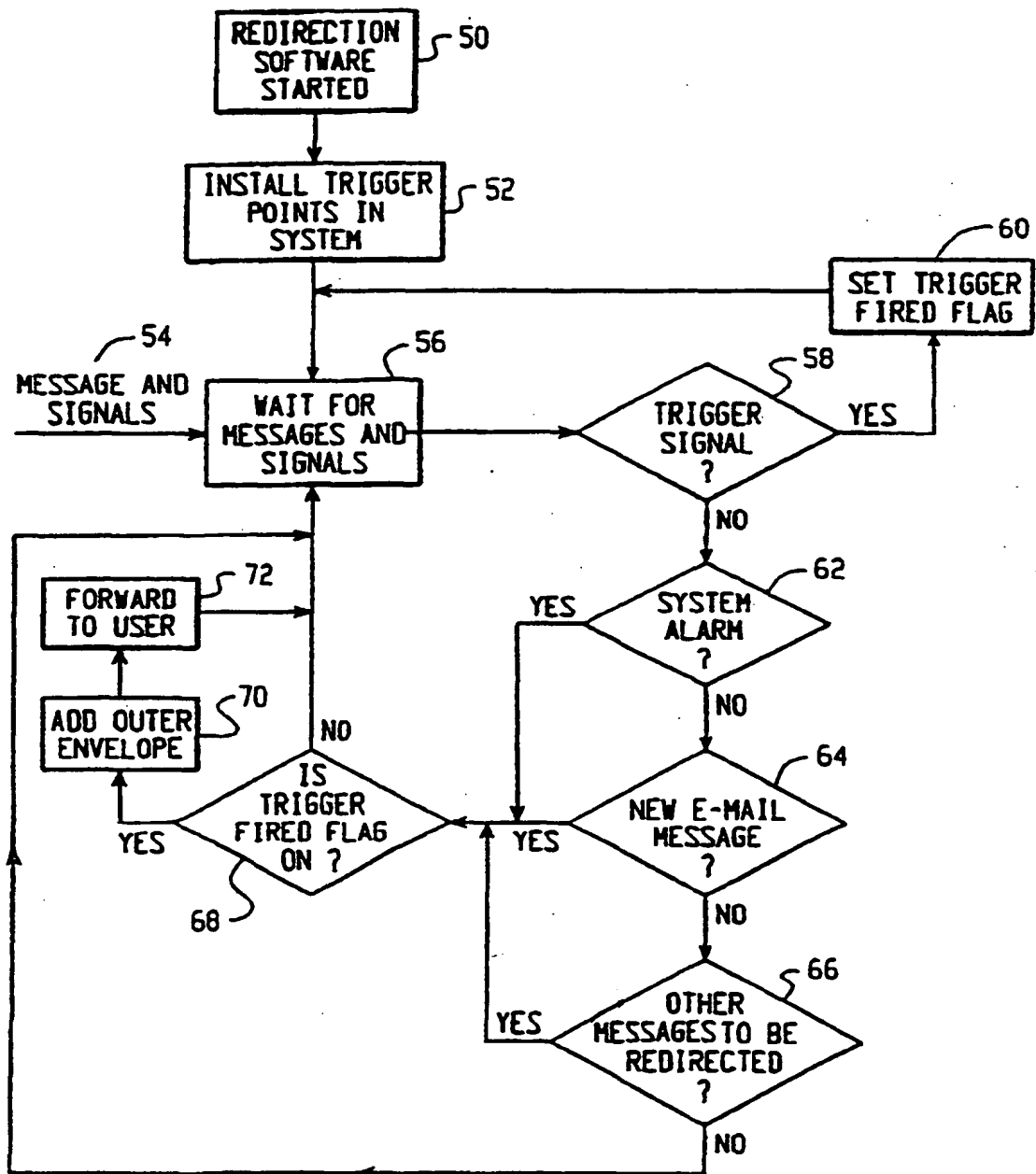


Fig. 4

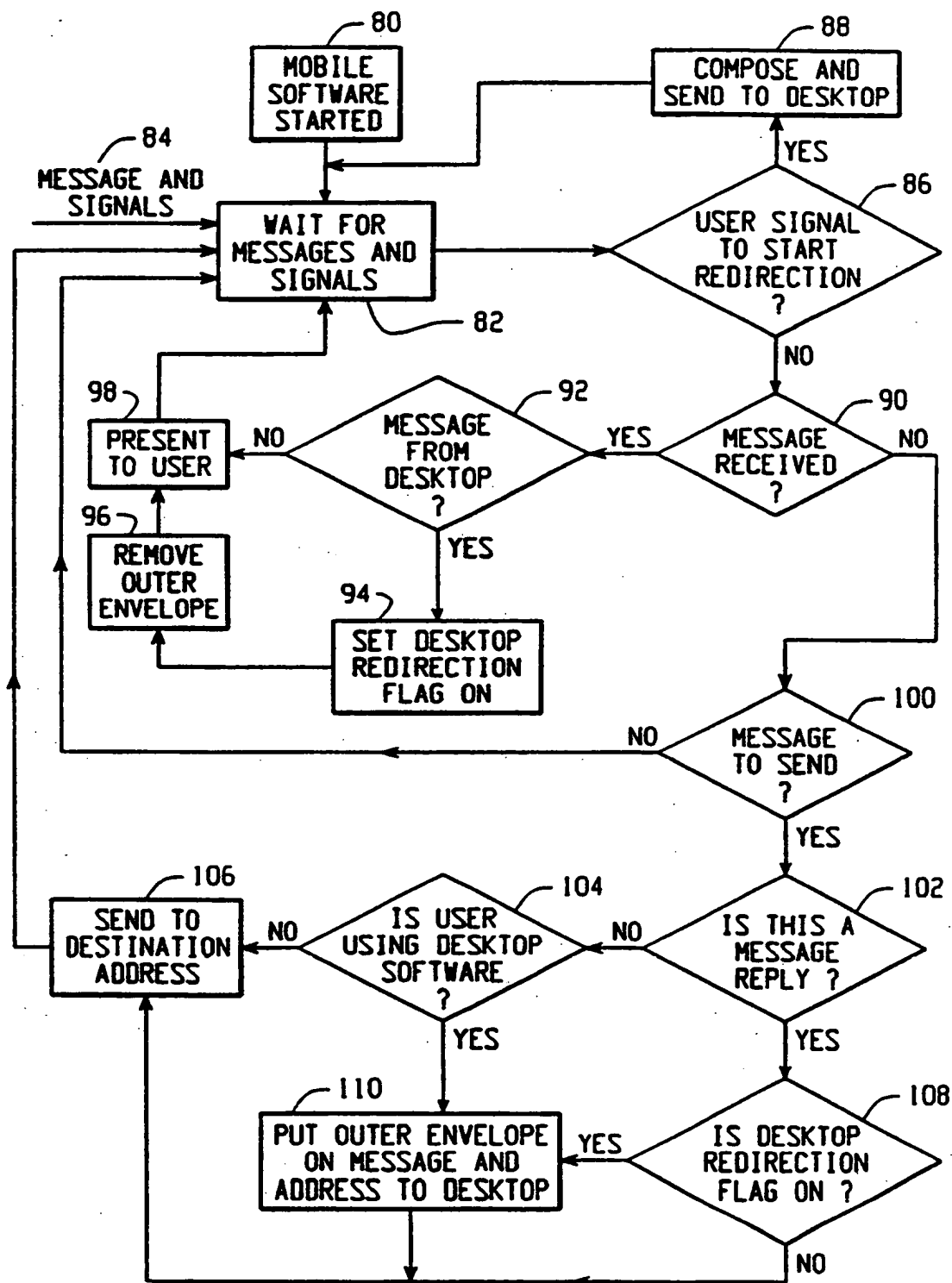


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 9741654 A [0010]
- WO 9732251 A [0011]

Non-patent literature cited in the description

- EGEVANG et al. *The IP Network Address Translator*, May 1994 [0012]